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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,243	02/14/2002	Vaidyanathan Kripesh	ALLEN4.001AUS	3258

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EXAMINER

GURLEY, LYNNE ANN

ART UNIT PAPER NUMBER

2812

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/078,243

Applicant(s)

KRIPESH ET AL.

Examiner

Lynne A. Gurley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-78 is/are pending in the application.
- 4a) Of the above claim(s) 53-78 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-52 in Paper No. 9 is acknowledged.

Specification

2. The disclosure is objected to because of the following informalities: on page 1, line 19, "connecting to a" should be "connections to". On page 2, line 15, "interconnects" should be "interconnect". On page 5, line 14, "combination" should be "combinations". On page 10, line 17, "that a bond pad tae" is not a clear statement. On page 10, line 30, "that use" should be "that uses". On page 11, passivation "103" in fig. 10a is not mentioned. On page 11, line 13, "diffenrece" should be "difference".

Appropriate correction is required.

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claim 27 is objected to because of the following informalities: there are two periods at the end of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 4-6, 7-8, 10-11, 13-15, 16, 18, 20-22, 23, 25, 27-31, 32-33, and 35-38 are rejected under 35 U.S.C. 102(b) as being anticipated by DiGiacomo et al. (US 5,266,522, dated 11/30/93).

DiGiacomo shows the method as claimed and as shown in figures 1-7 and corresponding text with Si chip 12, metal interconnect 14, and noble metal 20 deposited on the metal interconnect. The noble metal increases the bonding nature of the interconnect (column 6, lines 45-565). See column 1, lines 43-50; column 3, lines 1-3; column 4, lines 30-60; column 5, lines 4-3 and lines 54-58; column 6, lines 1-67; column 7, lines 1-23; column 8, lines 3-17) for wire bonding processes, substrate materials, copper interconnect.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 3, 9, 12, 17, 19, 24, 26, and 34-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiGiacomo et al. (US 5,266,522, dated 11/30/93) in view of Pace (US 2003/0124829, dated 7/3/03) further in view of Eldridge et al. (US 6,110,823, dated 8/29/00).

DiGiacomo shows the method substantially as claimed and as described in the preceding paragraphs.

DiGiacomo lacks anticipation only in not teaching that: 1) the metal wire composes aluminum or gold or metal alloy; 2) the chemical process comprises an immersion process, a dip process or an electroless plating process; and 3) a layer of solder particles of low melting point or

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a layer of fine particles of a noble metal or a tacky layer with these fine particles is used to supply the metal layer to be converted to the bondable layer.

Pace teaches the plating of metal over the bonding pad surface in order to form a more reliable interconnection [0011]-[0012], [0017], [0020]-[0023]. Low melting point metals are taught.

Eldridge teaches a wire bonding method wherein metals are discussed as well as metal particles dispersed in an epoxy (column 55, lines 35-67; column 56, lines 1-67; column 57, lines 1-11).

It would have been obvious to one of ordinary skill in the art to have used the metal particles in an epoxy or tacky layer, in the method of DiGiacomo, with the motivation that Eldridge teaches that this method is conventional.

It would have been obvious to one of ordinary skill in the art to have used plating and to have had the wire formed of aluminum or gold, in the method of DiGiacomo, with the motivation that Pace teaches that electroplating is conventional and that gold plating over the bonding pad is conventional. Also, Eldridge teaches that gold is often the top metal (column 55, lines 50-60).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne A. Gurley whose telephone number is 703-305-3474. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 703-308-3325. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

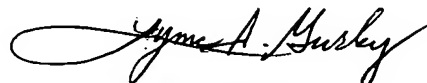
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-308-0956.

LAG
September 29, 2003


LYNNE GURLEY
PATENT EXAMINER
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